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How to

Save Dutch Elm Diseased Trees by Pruning

INTRODUCTION

Dutch elm disease (DED), caused by the fungus *Ceratocystis ulmi,* is the most devastating shade tree disease in the United States. Healthy elms can become diseased by 1) elm bark beetles that carry the fungus from elm to elm, or 2) through root grafting with already infected trees. Along with wilt symptoms, streaking (sapwood discoloration), a characteristic internal symptom of the disease, progresses rapidly down from limbs inoculated by bark beetles (Allison 1978).

Frequent surveys to detect elms in the initial stage of the disease and applying treatments can minimize elm losses. The following treatments can reduce DED incidence: 1) prompt removal of DED trees, 2) insecticide foliar spray, 3) timely chemical or mechanical destruction of root grafts, 4) injection of adequate dosage of registered systemic fungicides, and 5) combinations of the above.

Several researchers have tested pruning as a means of DED control. In 1976, Himlick and Ceplecha reported that over 60 percent of the diseased elms were freed of the disease by pruning as soon as wilt symptoms appeared. The success of a control program that utilized pruning depends on the distance between where the limb is pruned off and the streaked wood (see Fig. 1). Campana (1976) found that the maximum success (87 percent) with pruning was obtained when the distance from where the limb was cut off to clearwood (non-streaked) was 10 feet or more.

In 1976 a research project to evaluate pruning and fungicide injection was conducted in Elmhurst, Illinois, and Shaker Heights, Ohio. Results showed that success in freeing elm of Dutch elm disease by pruning depends on the extent of foliar symptoms and whether all limbs with streaking can be pruned out. Specifically, as the distance between the point where streaking ends and where the limb is severed increases, so do the chances of successfully eliminating the disease from the tree.

The relationship between percentage of wilt symptoms in a tree and control success is shown below:

Percentage of tree infected

Control success if pruned

65%	17%	10%	0%

The following show how the amount of nonstreaked (clearwood) wood affects control success:

Distance (ft) of clearwood from where the limb is cut off to streaked wood

Distance (ft)	0	0-5	5-10	10+
Percentage of trees free of active wilt	10	33	63	67

Pruning for DED control is generally acceptably successful when no more than 5 percent of the tree's foliage shows wilt symptoms or at least 5 feet of clearwood is present

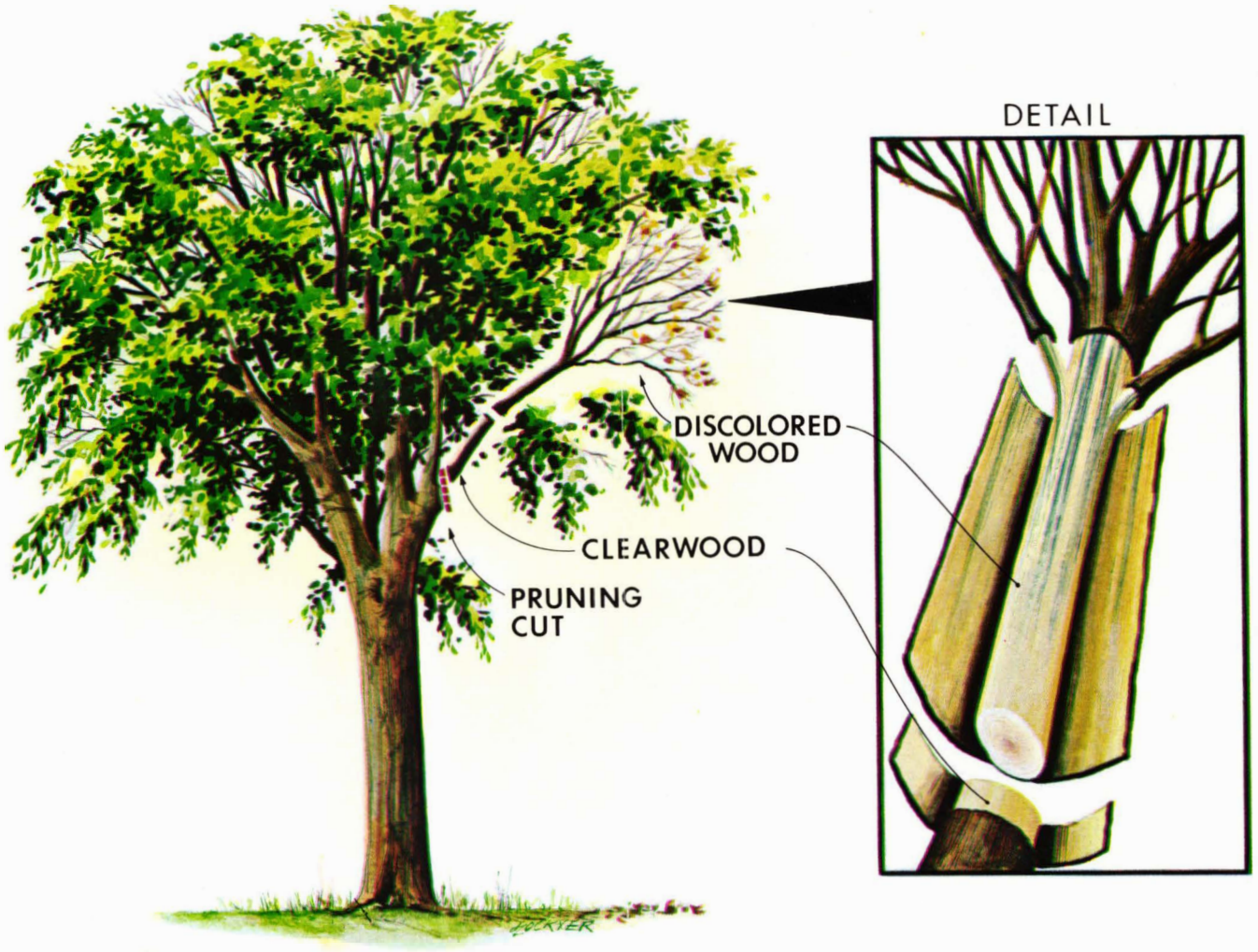

Figure 1.—Steps to follow when pruning.

between the discolored portion of a branch and the main branch stem of trees (Gregory and Allison 1979).

STEPS TO FOLLOW WHEN PRUNING:

1. Look for Dutch elm disease symptoms (Allison 1978).
2. Peel bark and look for streaking in sapwood of infected twig.
3. Determine where streaking stops in symptomatic limb by removing a series of small bark patches from tip toward main stem.
4. Remove limb that shows streaking. Prune off limb at the first major fork where streaking is no longer visible and where at least 5 feet of clearwood is present.
5. Continue to examine trees during the season for additional Dutch elm disease symptoms.
6. Steps 2, 3, and 4 if additional branches develop symptoms.

Limb removal as a means of eliminating Dutch elm disease from a tree assumes that all of the disease organism is removed. A person experienced in detecting the disease symptoms should determine where limbs with symptoms should be cut off. If streaking is detected where the limb is cut off, the fungus has progressed beyond that point; so a lower cut must be made to eliminate all streaking. Cover the pruning cut with wound dressing.

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